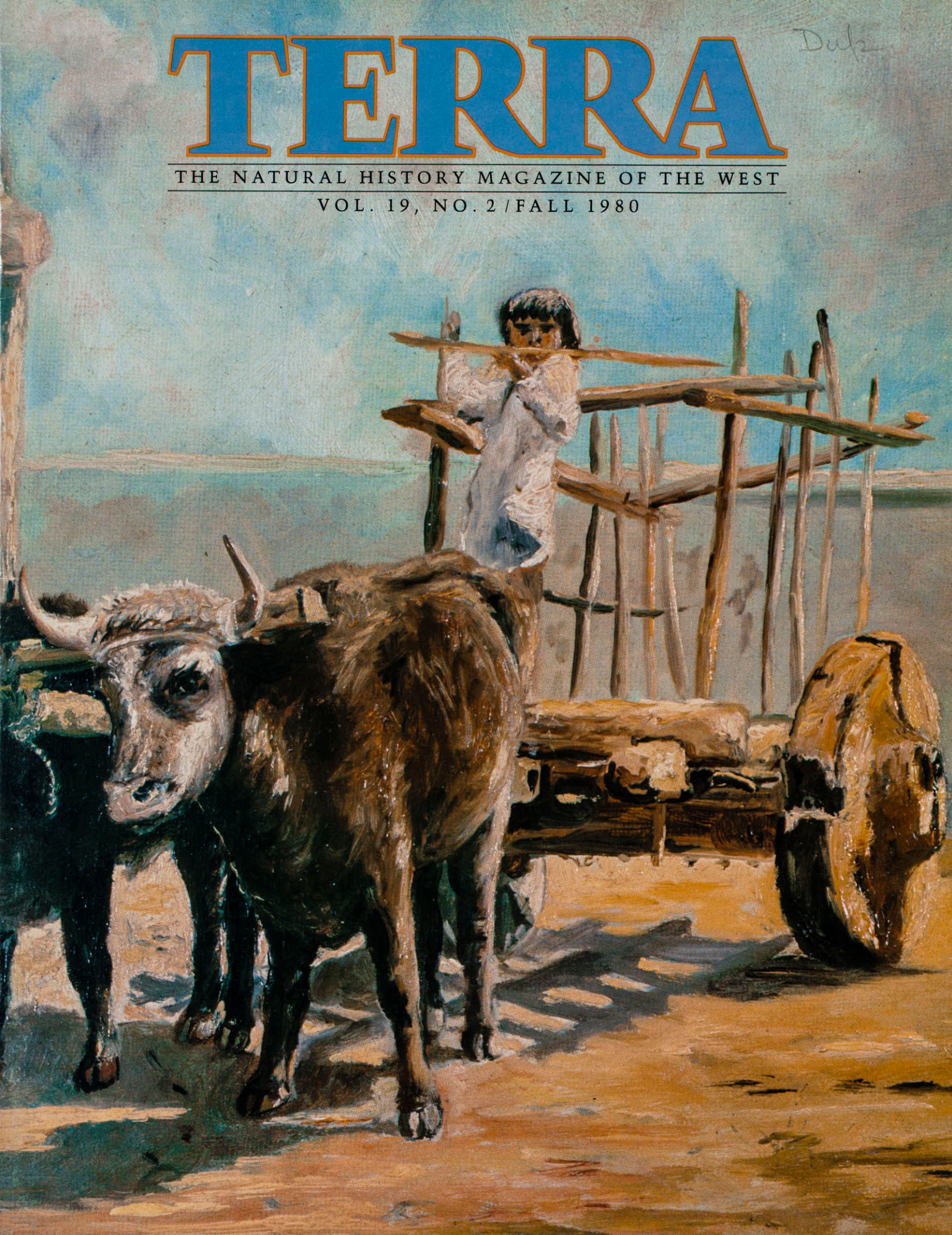
TERRA

THE NATURAL HISTORY MAGAZINE OF THE WEST
VOL. 19, NO. 2 / FALL 1980



Museum On The Move

The bicentennial of Los Angeles, which will be celebrated for an entire year prior to September 1981, provides a wonderful opportunity for this Museum to highlight not only the history of the City of Los Angeles, but the region of Southern California and the entire American Southwest. We have done this in a formal way by opening to the public the Maximillian N. Lando Hall of California and the Southwest History. It is especially significant that the Lando Hall is at last completed in this bicentennial year. There is no larger exhibition of local history anywhere in the country and the exhibition has been more than eight years in preparation. You are seeing a small portion of that exhibit in this month's TERRA. In a later issue a comprehensive guide to the Lando Hall will be prepared which will also serve as a catalog. The year of the bicentennial promises to focus tremendous attention from the rest of the world and the nation onto Los Angeles. The Natural History Museum as a major institution of education and research in this community will share in that attention and will contribute to the momentum leading to September 4, 1981, the 200th anniversary of the founding of Los Angeles.

William B. Lee, Director

Curators & Collections

December Events

Aloha Baker, who in 1930 was the first woman to explore Brazil's Mato Grosso by airplane, will give a program on her film, "Flight to the Stone Age Bororos," on December 2 at 7 p.m.

The Ninth Annual Indian Festival will be held from December 10 through 14. It will include demonstrations of weaving, pottery, and silversmithing. Mary Ann Ashley, a celebrated Navajo weaver, will use fleece from her own sheep to demonstrate traditional techniques.

On December 13 and 14 the Inter-Tribal Dancers of Los Angeles and the Apache Mountain Spirit Dancers will alternate performances in the Museum's halls.

A special film will be shown on December 13 at 2 p.m. "The Crooked Beak of Heaven" is a documentary of the Northwest Coast Indians which integrates footage made by Edward Curtis in 1912.

On Saturday afternoon, December 13, Marjorie Thayer and Elizabeth Emanuel will autograph their new book, *Climbing Sun: The Story of a Hopi Indian Boy.*

"Home for Christmas," a special holiday exhibit, will feature an antique dollhouse modeled after an historic Los Angeles home.

It's Our Seventieth

Three important events in 1910 marked the beginning of the Museum. It was also an important year in the life of Judge William M. Bowen, "Father of Exposition Park." For ten years he had fought both in and out of court to clear Agricultural Park of saloons, rabbit coursing and gambling to realize his dream of a cultural center.

On February 7, Bowen gathered representatives of four organizations, The Historical Society of Southern California, The Southern California Academy of Sciences, the southern branch of the Cooper Ornithological Society and the Fine Arts League, together with the members of the County Board of Supervisors. They drew up an agreement for the establishment of a museum to be called the Museum of History, Science and Art.

On Monday, July 11, several members of the new Board of Governors of the Museum gathered at the site of the building for a simple ground-breaking ceremony. Judge Bowen spoke of the plans for the building and Mrs. Henrietta Housh, of the Fine Arts League, delivered an address on the importance of the Museum in the cultural life of Los Angeles. Judge Bowen's daughter, Louise, then handed a shovel to Mrs. Housh, who turned the first shovel-full of earth.

Construction of the Museum and the California Exposition Building (California Museum of Science and Industry) progressed well during the year and on December 17 a great celebration was held to lay cornerstones for both buildings. About four thousand gathered to witness the event. Lieutenant Governor-elect, A. J. Wallace, was president of the day and many important civic and educational leaders joined the crowd.

It was a festive day. The band played "America" and the high school chorus sang. Mary S. Bowen, daughter of Judge Bowen, poured Owen's River water from a silver goblet and uttered the words, "I christen thee Exposition Park." Lee C. Gates gave the oration of the day dedicating the buildings "to the development of resources and industry of California,... for the preservation of the historic, scientific and artistic treasures of the Golden State."

Cornerstones were laid by the Grand Lodge of the Masons of California under the guidance of President E. A. Spalding of the Southern California Academy of Sciences. Bronze boxes had been filled with many current items such as newspaper articles, photographs and copies of official documents.

(Continued on Page 31)

TERRA

THE MEMBERS MAGAZINE OF
THE NATURAL HISTORY MUSEUM ALLIANCE
OF LOS ANGELES COUNTY
VOL. 19, NO. 2/FALL 1980

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Cover

"Tesuque, Carreta" oil on canvas by Ralph D. Miller, 1881. Original in the collection of the Museum of New Mexico, Santa Fe.

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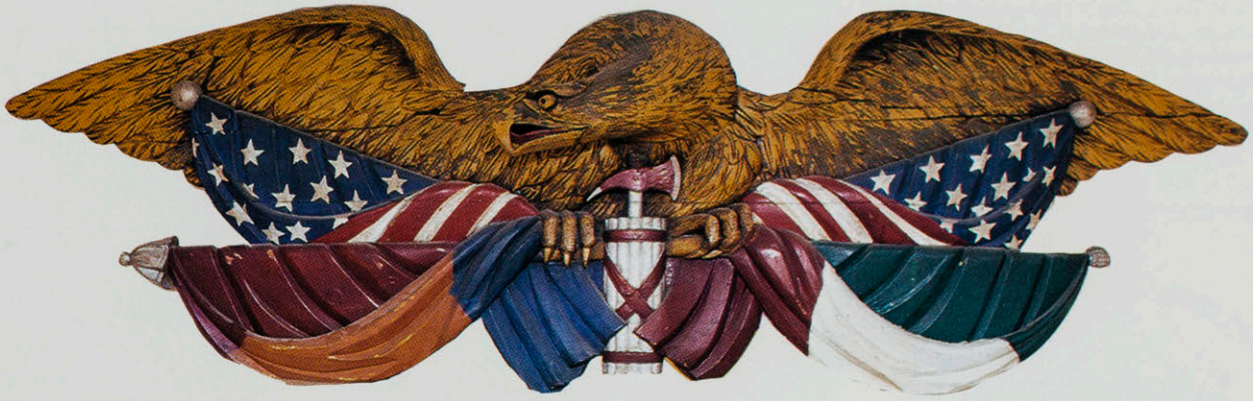
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California and the Southwest 1540-1940

Californiana on Display



IN THE MIDDLE OF THE last century carved wooden eagles such as this were used frequently as stern decorations on American sailing ships. This particular bird came to San Francisco during the Gold Rush. When its ship was dismantled for building materials, the eagle found a second career watching over the front entrance of the California State Capitol in Benicia. The building is still standing, but the magnificent carving is now permanently displayed in the California statehood exhibit of the new gallery.

by HARRY KELSEY

For those unfamiliar with the vast historical collections at the Natural History Museum of Los Angeles County, the massively rich and varied collection of Californiana is a distinctly pleasant surprise. It is probably the best collection of its type anywhere, with all sorts of maps, books, photographs, costumes, models, dioramas, vehicles, manuscripts, paintings, and other materials that span nearly four hundred years of California history.

Many of these things—nearly two thousand items that constitute the choicest treasures of a huge collection—are on permanent display in a new exhibit somewhat ambitiously entitled "California and the Southwest, 1540–1940." The gallery itself covers an entire wing on the ground floor and is the largest single exhibit hall in the museum building, perhaps the largest such hall anywhere in the West.

The construction of the hall was largely financed by a bequest that the late Maximillian N. Lando made to "the good people of Los Angeles," leaving it to the courts to decide how the citizens could best be served. Because of the persuasive presentations made by our former museum director, Dr. Giles Mead, the court ultimately determined that a new "Maximillian N. Lando Gallery" in the Natural History Museum would best serve the interests of all "the good people of Los Angeles." The funds came to us late in 1972, and the original plan was to have the new hall open on July 4, 1976, as part of a series of Bicentennial celebrations that would end in September, 1981, with the observance of the Los Angeles Bicentennial.

Whether we were naive or just overly optimistic is not exactly clear now, but we all learned the hard way one of the unwritten natural laws. Museums have a pace and momentum all their own, slow and ponderous. The larger the museum, the slower the speed with which it moves. The American Bicentennial came and went, and the Lando Hall, as we called it, was scarcely started. Ditto 1977, 1978, and 1979. But all good things come to an end, and on October 15, 1980, though not quite finished, the new hall was opened, a Bicentennial gift to "the good people of Los Angeles," on its two hundredth anniversary.

Because we always prefer to work down to the deadline, it is not possible yet to show the hall or any part of it in its final state. Instead, each curator in the history division has selected an object or two from the hall and has written a few words of description aimed at enticing members and the public to come and see the display. It is a marvelous collection, filled

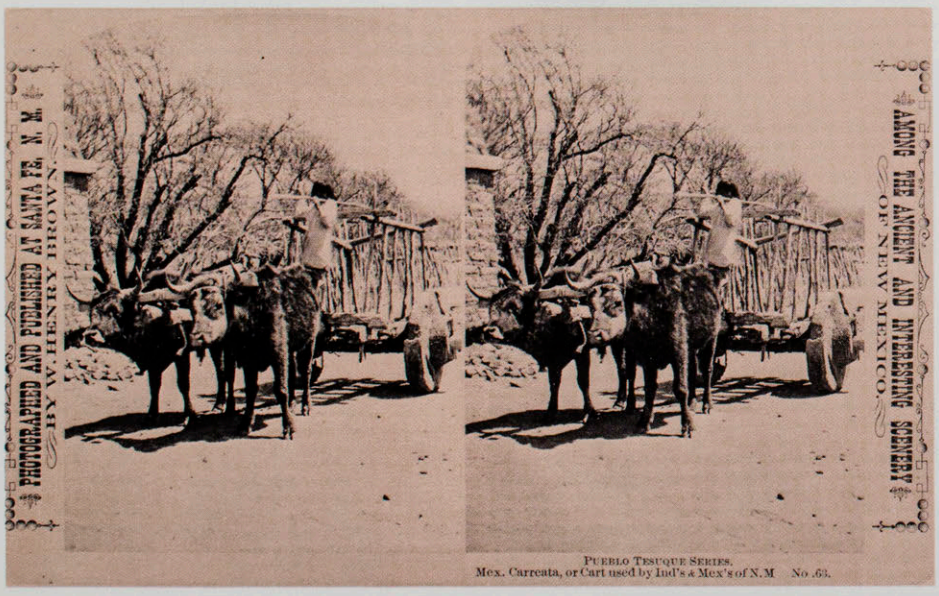
with unique and fascinating objects that make curatorial work such a pleasure. Look over these selections, then come to see the new gallery for yourself and see whether you agree with us.

Harry Kelsey is chief curator of history at the Natural History Museum of Los Angeles County.



About fifty years

ago, in 1930 and 1931, to be exact, our model makers finished work on a series of miniature dioramas depicting important events in the history of California. Now these huge "shadow boxes," as they were first called, are themselves historic objects, and the best of them will be on display in the new gallery. Museum Model Maker Joe Cōcke recently finished the tedious job of restoring and refurbishing these dioramas. In this photo Joe puts the finishing touches on a model that depicts Drake's landing somewhere on the California coast.



In recent years our

special exhibits have often been advertised through the use of a logo that seems to epitomize some major aspect of the display. The unanimous staff choice for the Lando Hall is our carreta, shown here in W. Henry Brown's stereopair taken at the Pueblo of Tesuque, New Mexico. The cover painting, from the collection of the Museum of New Mexico, was done by Ralph D. Miller in 1881, apparently from Brown's photograph. The old vehicle was brought to Los Angeles by Newton H. Chittenden in 1896 and was displayed for years in the old Chamber of Commerce museum, before finally being donated to this Museum. It was probably built in New Mexico in the late eighteenth century. Similar vehicles were widely used in the Spanish and Mexican Southwest.

SIXTEENTH CENTURY

soldiers, like those of today, used armor of a general style mass-produced and used by armies throughout Europe. This morion *is probably of French manufacture but is of the type used by the soldiers of Juan Rodriguez Cabrillo, who first reached these shores in September, 1542.*



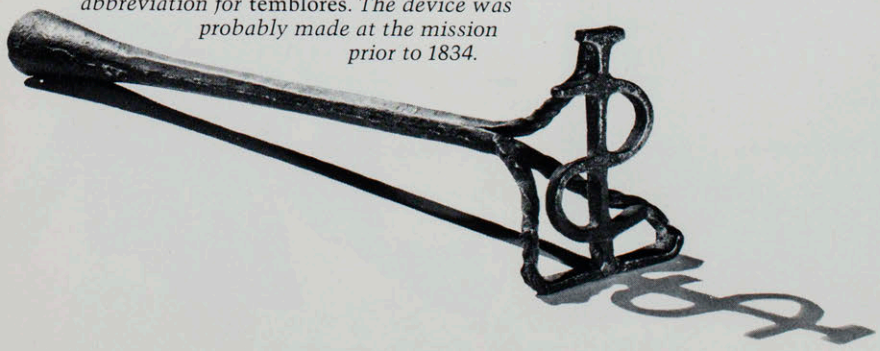
WHEN THE FIRST

Franciscan missionaries came to California, members of the order wore grey robes rather than the brown habits now in use. The garb shown here includes a water bag and walking staff, but does not include the cross traditionally worn around the neck by missionaries.

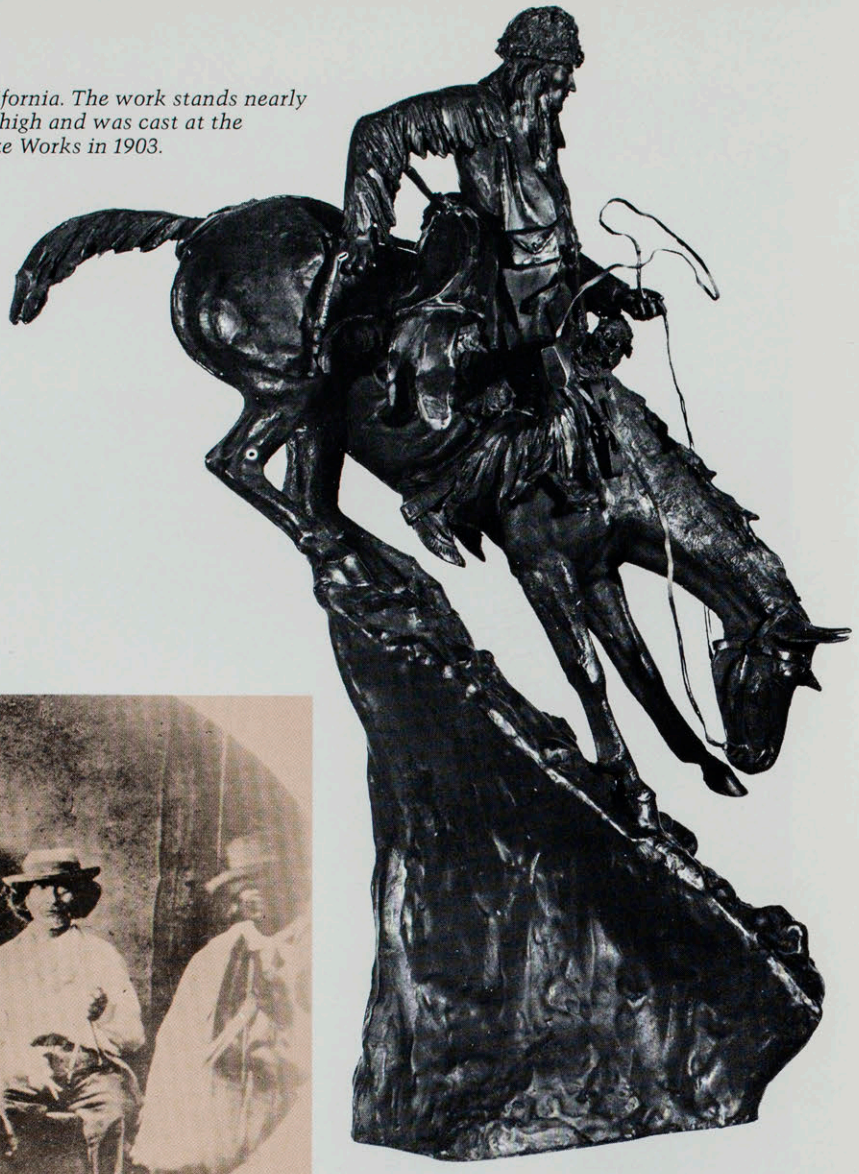


THIS IS A SAN GABRIEL

Mission branding iron, used on the Mission's great herds of cattle. The first Spanish exploring party to reach the site of San Gabriel Mission called the place temblores, *because of the many earthquake tremors they experienced in the region. The "TS" in this San Gabriel Mission branding iron is the abbreviation for* temblores. *The device was probably made at the mission prior to 1834.*



ONE OF THE CHOICEST bronzes in the museum collection, this original Frederic Remington "Mountain Man," depicts the sort of man who explored the West in the late 1700's and the early 1800's and blazed the overland route from the United States to California. The work stands nearly thirty inches high and was cast at the Roman Bronze Works in 1903.



SEVERAL EXPERTS IN the history of photography have called our photographic collections the largest and best in the entire state of California. Among these rare and interesting pictures is this view of Indian musicians from San Buenaventura Mission, probably taken about 1855–1860. Without much doubt this is one of the earliest photographic images of Southern California Indians, almost certainly the earliest such view of Ventureno Chumash people.





LONG TROUSERS OF the type worn by this Dwight Franklin → model became popular with California men in the early 1840's after a group of settlers from Mexico, the Hijar-Padres colony, introduced the style which had been fashionable there for some time. Older men and men working on horseback among the cattle continued to wear the older style short breeches, as seen in this scene from the diorama entitled "A California Wedding Party, 1840's."

←



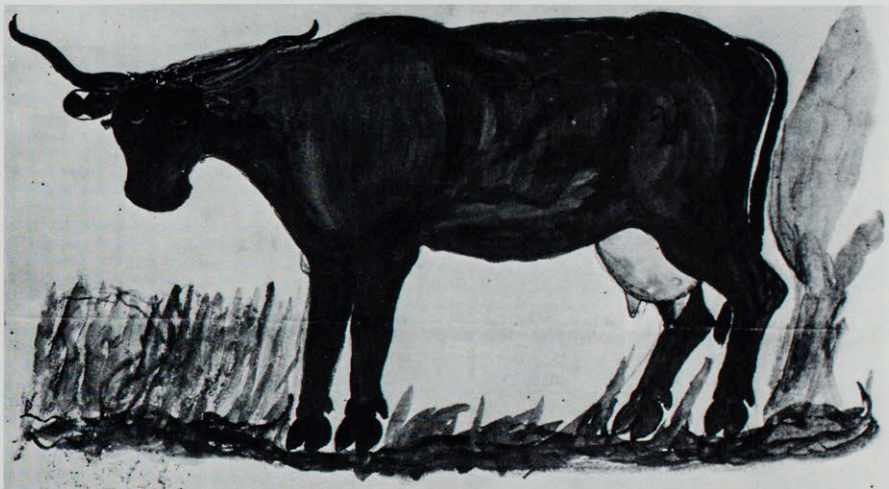
THERE ARE HUNDREDS

of prints in our collections of Californiana, but among the rarest and most interesting are the views of Mexican life done by Carlos Nebel from 1829 to 1834 and published in his Viaje Pintoresco. *The* poblanas *shown here would not be out of place in modern California, though their gentleman admirer might seem a bit overdressed in most social circles.*



ONE OF THE MOST

important civic officials in early Los Angeles was the registrar of marks and brands. This early manuscript, illustrated in watercolor, is unusual in that Registrar Ygnacio del Valle is registering his own mark and brand before his deputy, Manuel Clemente Rojo. The date is September 6, 1850, a few days before Congress recognized California statehood but considerably after the citizens themselves had designated California as a state, as the heading and the seal on the document indicate.



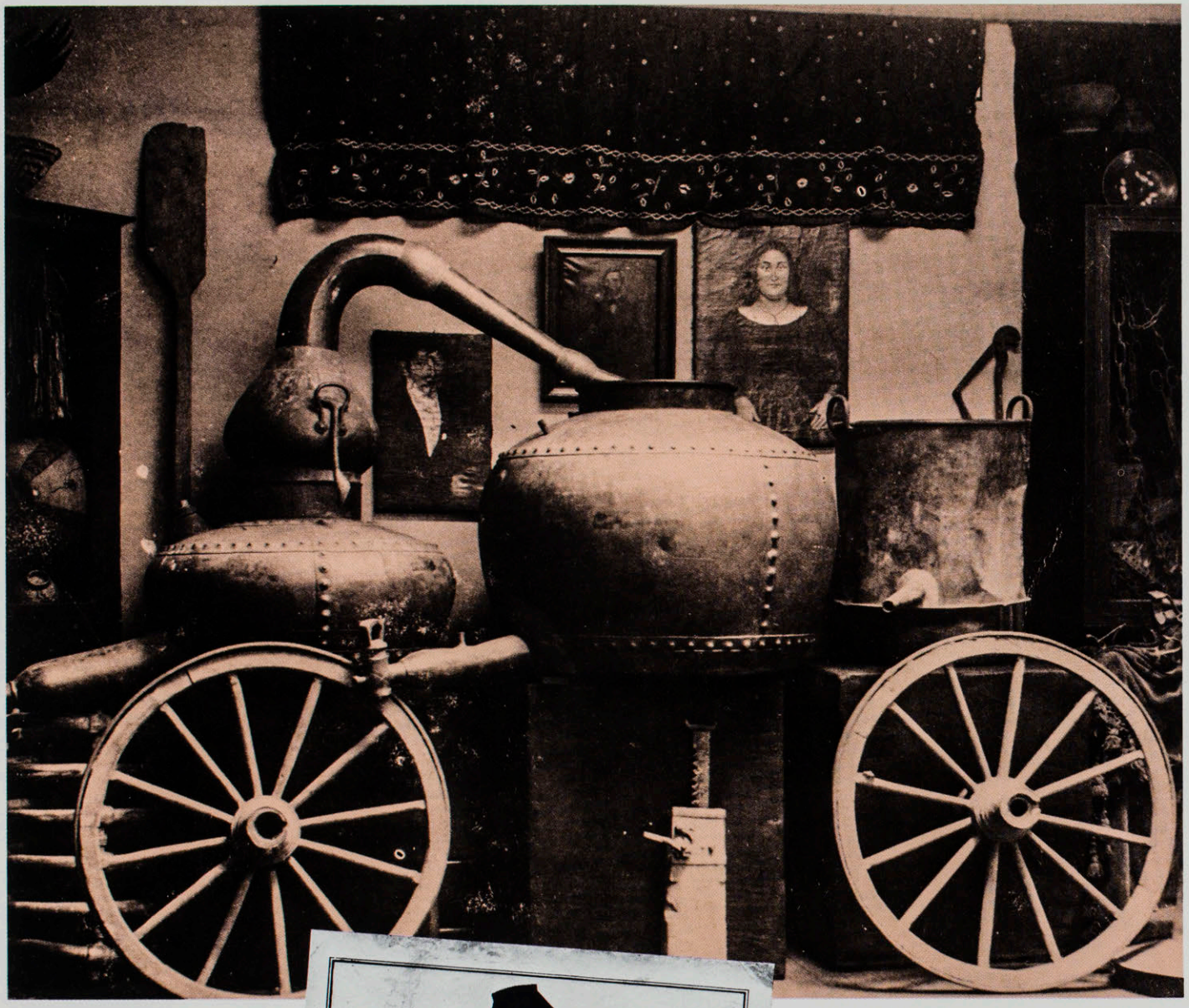


Estado de California
Condado de los Angeles }

En virtud de la ley de 12 de Abril, de 1850, se presentó Ygnacio del Valle, solicitando, se le permita continuar, usando, el fierro y señal que van estampados en la vaca dibujada arriva; los cuales le fueron concedidos por la autoridad mexicana desde el año de 1835. La señal es conocida con el nombre de dos lanavillas. Y como entre los fierros y señales registrados, no existen ningunos semejantes, se le concedieron y archivaron á razon de fojas 9 del libro 1º de fierros y señales, comenzado el dia 6 de Set.e de 1850.

En cuyo testimonio suscribo mi nombre y pongo mi sello oficial, en esta ciudad de los Angeles, hoy, 2, de Junio de 1851.

Ygn.o del Valle Registrador
por su diputado
Manl Clemte Rojo.





ONE OF SEVERAL

brandy stills known to have been used at San Gabriel Mission, this device was built and sold by John Benson of Brooklyn, New York, while California was still a Mexican province. This view shows the still and several parts of stills in a display of the Coronel Collection at the old Chamber of Commerce museum. Many of the other items will also be on display in the new gallery.

OUR COLLECTION OF

Gold Rush materials is particularly rich, both printed items and the machines and tools used in the mines. This comic depiction of a Forty-Niner is one of several humorous Gold Rush views on display in the hall, though this is the only Currier in the Gold Rush section.

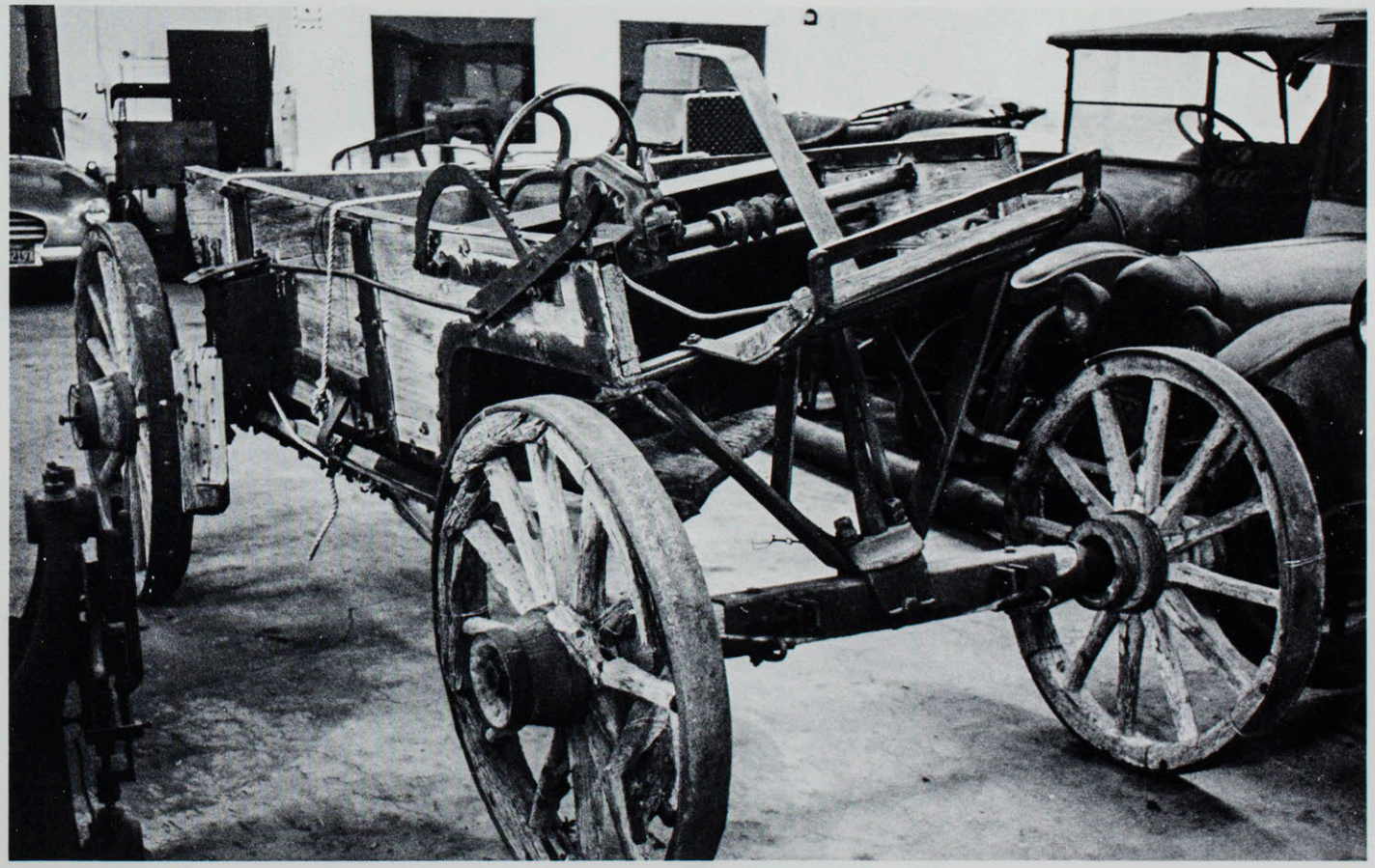


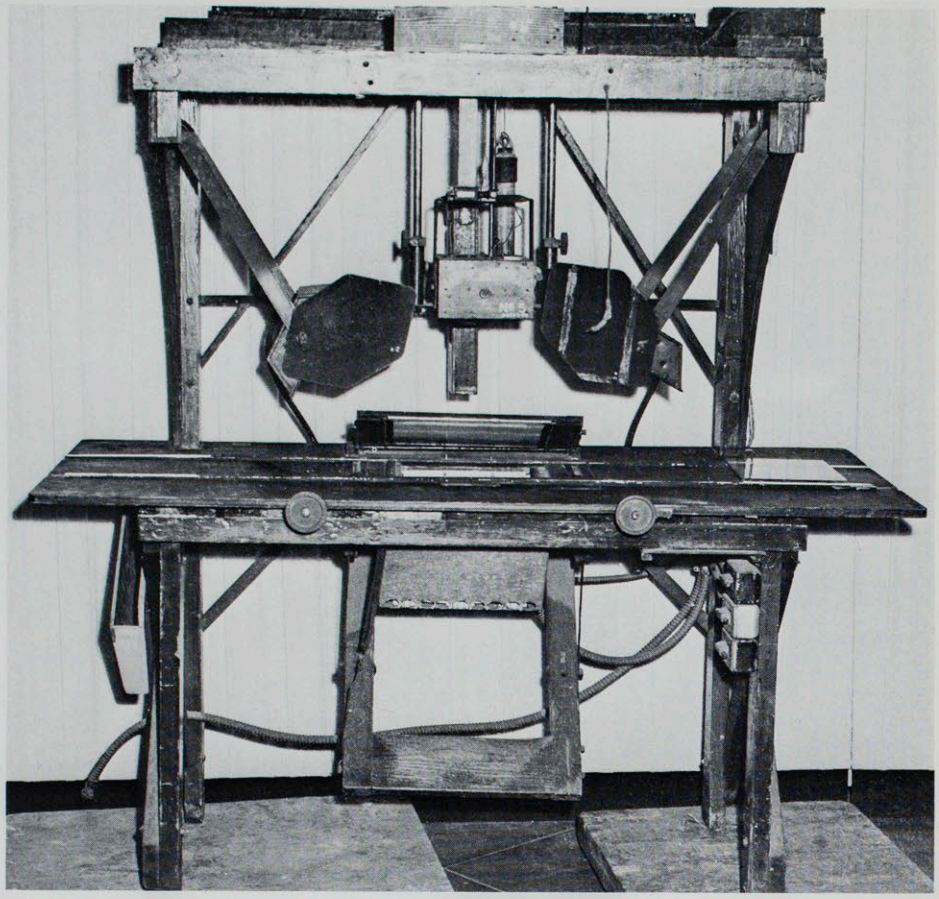
In 1904 the city of

Los Angeles contracted with the Nott Fire Engine Company for the purchase of a new steam fire pumper. Shown here in front of its permanent home at Court and Hope streets, Engine 16 answered calls in downtown Los Angeles for thirty years. After retirement Engine 16 appeared as a movie prop in a number of Paramount pictures. The engine has now been restored to its pristine glory, one of the main features of the new exhibit.

Built by the smith

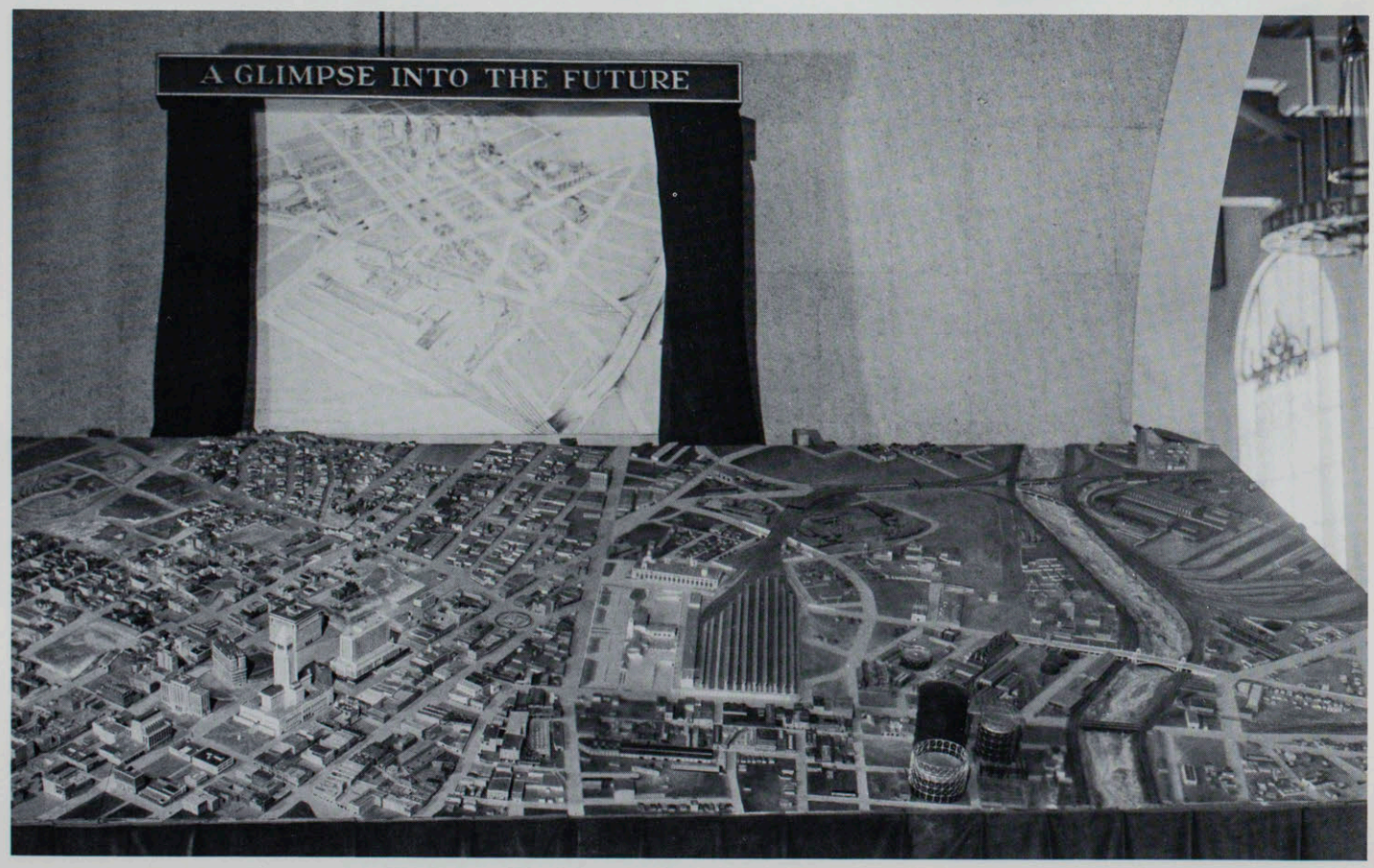
and Sons Manufacturing Company of Kansas City, this dump wagon was first used on early California highway construction projects, then acquired by the city of Los Angeles for use in the Owens River project. Tractors were widely used even in the first decade of the twentieth century, but city engineers on the aqueduct project found that gasoline engines broke down frequently and were expensive to repair. Consequently, they switched to these giant vehicles, two to a train, pulled by teams of a dozen draft animals. Fully restored in our own museum shop, this dump wagon is one of the larger exhibit pieces in the new Lando Gallery.





THIS CRUDE-LOOKING device is the first animation camera, built and used by Walt Disney after he moved to California. This is just one of a number of important pieces of movie memorabilia including props, movie posters, and costumes, that are displayed in the hall.

IN 1540 AN INDIAN village of no particular note, in 1769 an attractive enough spot to be called "this delightful place," by 1940 Los Angeles was a booming metropolis, the center of population and culture for the entire Southwest. This model of downtown Los Angeles was built by the W.P.A. for use by city planners. Shown here when the model was on display in City Hall before completion, the model was finished in 1940, and it is now the final exhibit item in the new gallery.





CEPHALOPODS' GRAVEYARD

A polished slab of limestone from Erfoud, Morocco reveals fossil seashells that accumulated on the ocean floor toward the end of the Devonian Period, approximately 360 million years ago. The largest specimens are sections through the shells of cephalopods somewhat related to the famous living chambered nautilus. There are two basic shapes: a straight cone and a coiled one, both of which show the partitions of the chambers. This slab is a gift of the Natural History Museum's Foundation and now is displayed in the Invertebrate Fossil exhibits on the Hancock Hall Mezzanine. Shown are *Orthoceras* sp., *Pseudocylmenia* sp., and *Sporadoceras* sp. *Photo by Larry Reynolds.*

An Artist's Gift To His City



Photographs by JAMES CHEN

by ELIZABETH J. WRIGHT

ON SEPTEMBER 4, 1980, TONY DUQUETTE presented his bicentennial gift to the City of Our Lady Queen of the Angels.

He has named it a Celebrational Environment and this magnificent presentation at the California State Museum of Science and Industry in Exposition Park is the culmination of a lifetime dedicated to an uncompromising, individual art form based upon the ultimate, unifying power of myth, of ritual, of nature; of the past, the present and the future.

Utilizing that barn-like structure, the Museum's Armory, Duquette has transformed its 10,000 square feet of empty space, cold concrete walls and forty-five foot high steel beams into an experience of enchantment and awe.

Upon entering, a gradual sense of recognition of something strange, yet somehow known, floods over the viewer. Long neglected symbols, hints of primitive rites, shadows, colors, sounds, tap at today's restless conscious mind and whisper for release. Gifts of the earth, the air, the sun and the sea are combined in exquisite, startling transformation with fabrics, pigments, lighting and music.



The ear is seduced softly by the ancient Spanish penitential *Saeta* as well as a lingering, background composition created especially for the Celebration by Garth Hudson, formerly with Bob Dylan, and played on the Moog Synthesizer. At given periods Charlton Heston is heard reading from a poetic invocation for this event written by Ray Bradbury.

CENTRAL TO THE CELEBRATION IS OUR Lady Queen of the Angels. To quote the artist: "The deep symbolism—the concept of central beating heart, the heart of the world mother—to have meaning for all...Catholic and non-Catholic, Christian and non-Christian. Mary, the Mother of the Divine Child, but also symbolic of universal figures: Demeter, Cybele, Isis, the Earth Mother..."

This fourteen-foot high Lady is wrapped in a magnificent robe designed to represent the four seasons of the year. Her placid face changes in rhythm with changing lights (on a computer) as it represents the four ethnic groups of mankind—black, white, yellow and red. (This amazing effect is achieved electronically by photographic projection.)

The appropriateness of an "angelic" theme, although with angels unique to this Celebration, continues with the presence

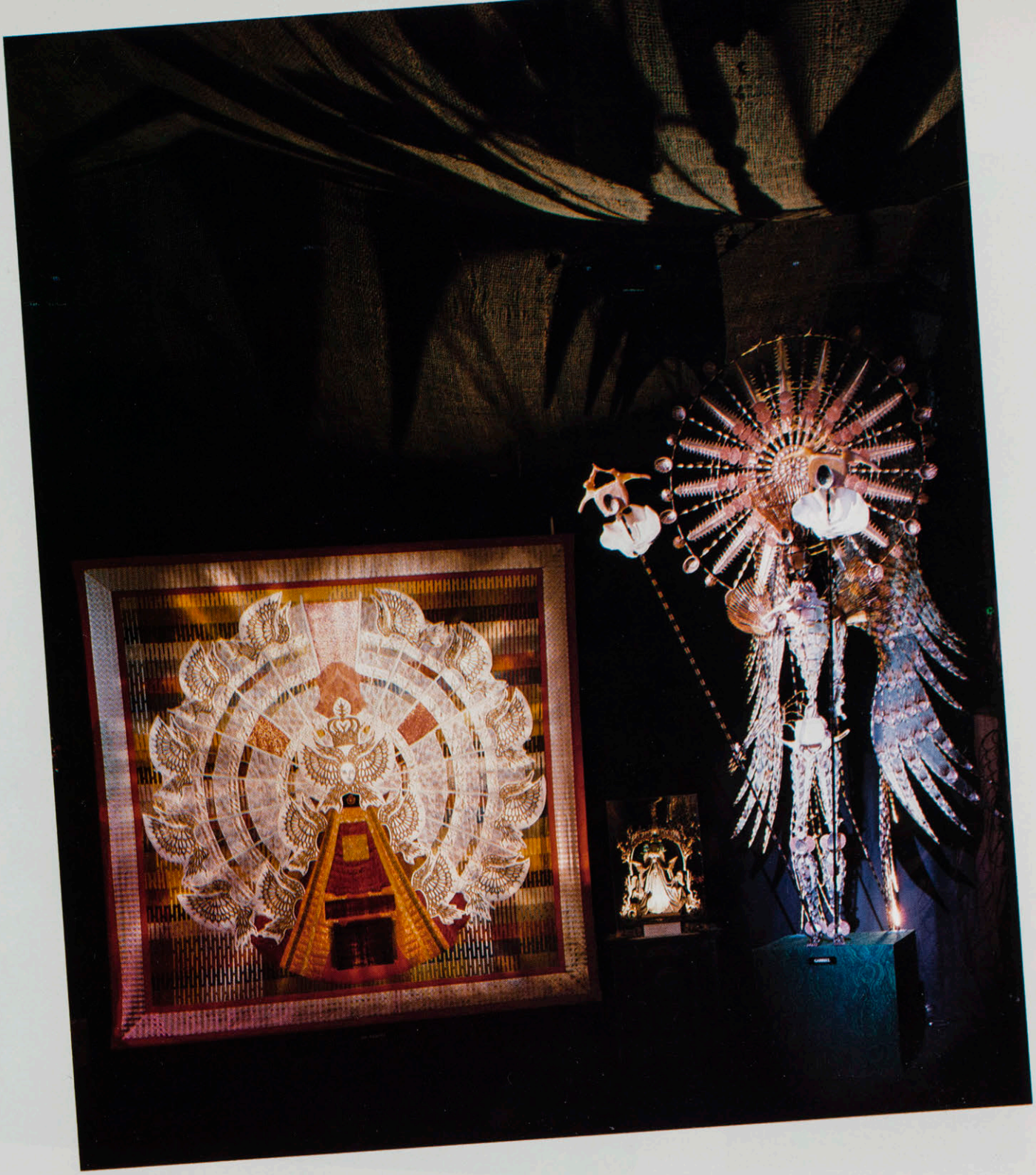


of eight monumental twenty-eight foot skeletal archangels rising toward the ceiling. Each scintillating, each arresting, represented are Gabriel, Michael, Raphael, Uriel, Israfel, Ariel, Zadkiel and Azrael, angels known from antiquity and to a variety of cultures. Greeting the visitor at the entrance are two other impressive archangels—appearing anonymously.

HUGE DIMENSIONAL TAPESTRIES, eight in number, and sixteen smaller ones glow and glimmer as colored moving lights play over their surfaces. Exciting experiments in design have resulted in tapestries with such figures as the Angel of Night, the Angel of Day, two Aspects of the Angel of the Forest, Our Lady of Africa, a Mexican angel with a background of 7,000 tassels, an Egyptian angel as well as one incorporating the Heavenly Host.

Numerous small antique madonnas dressed in precious fabrics from France, Thailand and the looms of seventeenth-century Lyon, stand upon gnarled grape-root pedestals.

Four altars placed about the walls honor Earth, Water, Air and Fire, and the perceptive viewer begins to grasp a bit of the artist's unspoken message—dependence upon these natural elements proclaims mankind's unity.



More detailed viewing deepens into a realization of the hidden wonders worked with materials borrowed from nature. So design-integrated are these natural elements that they are often difficult to recognize.

WHO BUT TONY DUQUETTE COULD conceive of perching a small Madonna upon the pelvic bones of a kangaroo to create a work of beauty?

The Archangel Gabriel, Angel of Moon and Sea, has incorporated into his form saw-tooth shark saws, the vertebrae of dolphins and a whale plus a wavy top shell, while his massive halo is ingeniously composed of saw-tooth shark saws, abalone shells, keyhole sand dollars and scallop shells. Towering standards culminate in replicas of two giant South Seas clams and saw-tooth shark snouts.

Seldom has abalone shell been used to so express its translucent beauty as in Duquette's Altar to the Sea. Surrounding an antique Italian shrine are two varieties of abalone, scallop shells, a false trumpet shell, pink-lipped Murex, and real sea fans. A natural Strombus snail shell can be discovered while a translucent casting of a large plastic snail shell rests before the Virgin. Authentic red coral intertwined with artificial pearls





form her crown. Red-orange sprigs of artificial coral add a piquant contrast to the massing of the iridescent abalone.

CASCADING DRAPERIES HELD BY BIRD forms flow from a canopy over the Altar to the Air. Here a life-sized figure stands encased in a robe of staggering magnificence. From Thailand, it is composed of approximately 400,000 exotic wild bird feathers (gathered long ago) and which had been worked into a myriad of mandala-like designs. The figure's halo effect, while elegant, is composed of less exotic hawk feathers.

Not to be missed is another halo—this one of Morpho butterfly wings from Brazil which delicately enhance the charm of a small eighteenth-century Madonna.

The soaring form of Zadkiel, Prince Over the People of the Birds, flaunts glorious peacock and egret feathers.

Drawing upon a rich heritage shared by both Jews and Mohammedans, is the presentation of Azrael, Angel of the Transmigration of Souls. Through the artist's magic animal horns, a crocodile skull, and less than life-size cast human skulls are integrated with other design materials to create a harmonious and meaningful statement.

Taken from within the earth, great twisted and gnarled grape



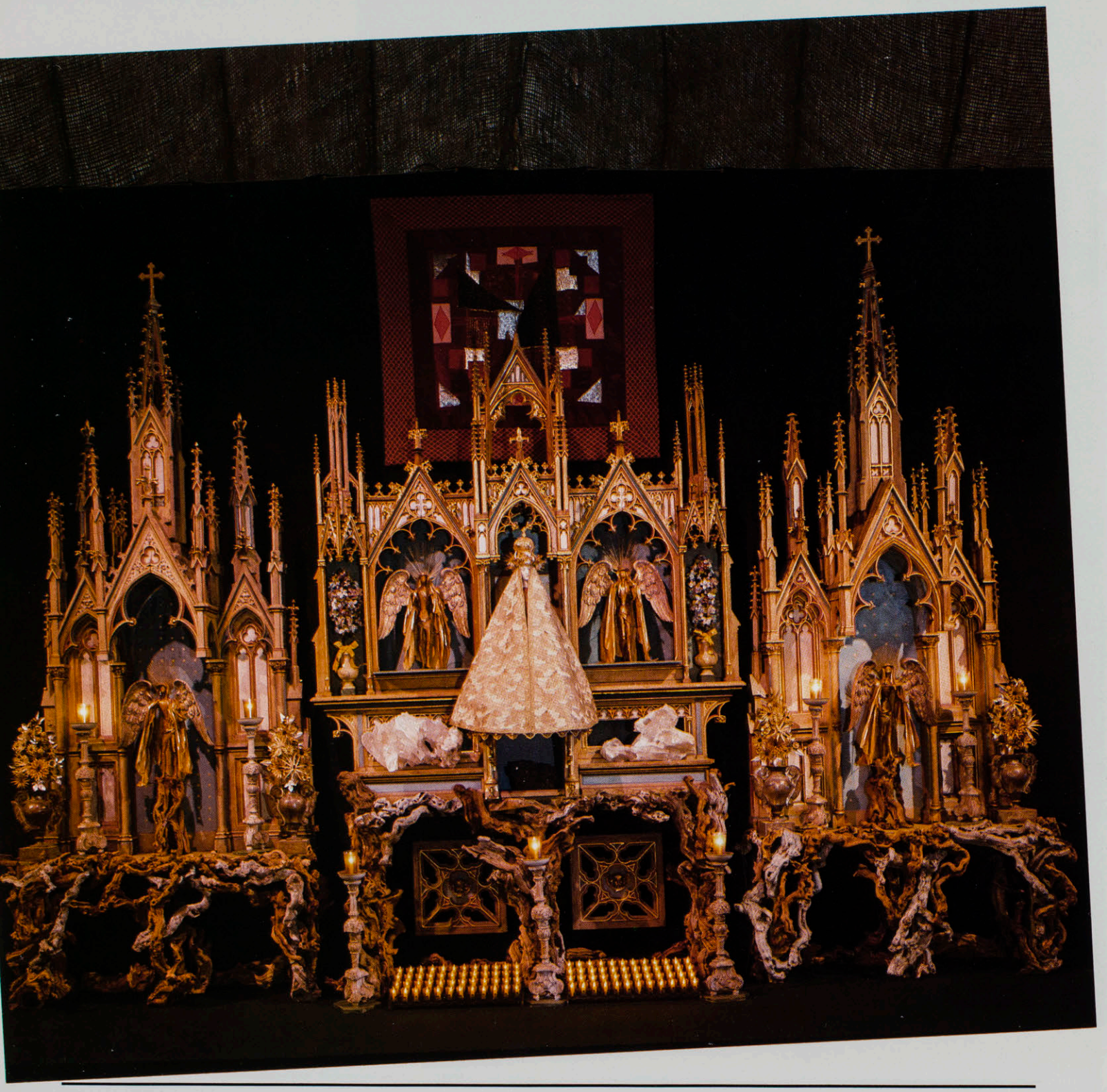


roots give a new dimension as supports for an antique Gothic reredos. Dimly showing, from behind glass, are fine quartz crystals. This is the Altar to the Earth.

GOLD—GOLD IS EVERYWHERE. GOLD leaf, gilt, sun-bright gold color all bombard the senses. But its lavish use is not for deliberate decoration. Drawing upon the ancient Inca belief in the healing power of gold, Tony Duquette's message here reflects his lifetime philosophy of hope and daring expectation.

Two years ago, responding to this artist's vision of his projected Bicentennial gift for the city, over 450 workers, 200 of them volunteers, dedicated themselves to help make the dream a reality. Embraced into the forms designed by Tony Duquette is the work of such disparate contributors of time as a French woman who took two years away from her home in Paris, to a number of six-year-old orphans who might have been seen kneeling on a workshop driveway, sewing together pieces of erosion net which later magically became the Heavens. Numerous other volunteers came from schools, industry and the home.

Finally, on September 4th, the dream became a reality.



Asked for a statement about his approach to his art, Tony Duquette replied:

> *... Nothing must stop the eye, the mind's key: it must be given something to follow, to be drawn towards, to change its course: it must be surprised.*

IN THIS BICENTENNIAL CELEBRATION the eye has been given a visual and philosophical feast to follow, to be drawn towards; it has been challenged with unspoken hope from nature, from the past, toward changing its course; and by the magic of this incomparable creator—the possibility of a surprise-awakening to the magnificent potential of the people who live in this most cosmopolitan of cities, El Pueblo de la Reina de los Angeles.

The State Armory is only a walk across the Rose Garden from our Museum. Sometime between now and September 4, 1981, it will reward you to make that stroll to a visual feast.

Elizabeth Wright was the volunteer publicist for this year's Santa Barbara Arts Festival. A radio and television writer of note, Mrs. Wright's articles for TERRA have always brought the mail flocking in.





ABOUT THE ARTIST

While completely modern and of his time, Los Angeles-born Tony Duquette works in the manner of the Renaissance artist. He is equally skilled in work with fabrics, painting, sculpture, costume design, fanciful decoration, jewel settings, and public buildings.

Among his prestigious credits is a Tony award for costumes in "Camelot." He is the only American artist to have had a one-man show at the Louvre.

The distinction of early recognizing and exhibiting Tony Duquette's work in 1952 is held by the Natural History Museum of Los Angeles County while it still encompassed the Art Museum.

James Chen is a commercial photographer with studio in Santa Barbara. He works extensively in Southeast Asia and California. He has won awards of excellence from the San Francisco Society of Communicating Arts, Art Directors Club of Los Angeles, and Art Direction Magazine, among others. Chen is no newcomer to the Natural History Museum of Los Angeles County, having had his first one-man show there in 1967 after graduating from Brooks Institute.

THE WORLD'S LARGEST FLYING BIRD

by KENNETH E. CAMPBELL

How big can a bird be and still fly? For years scientists thought they had the answer, an answer provided by the fossilized bones of two long extinct species of birds. One of these was a land bird, *Teratornis incredibilis,* and the other was a marine bird, *Osteodontornis orri.* Fossils found in southern California of both of these species indicated that their wingspans were between sixteen and seventeen feet. People marveled that birds that large could fly.

But buried beneath the dry, dusty plains of Central Argentina, Nature had hidden a most spectacular surprise and kept it safe for millions of years. The surprise was the fossilized bones of *Argentavis magnificens,* now the world's largest known flying bird. With a wingspan of twenty-five feet, and stretching eleven feet from the tip of its bill to the tip of its tail, the Magnificent Bird of Argentina pulls one's imagination to the limit as the mind struggles to grasp its enormous size.

The giant bird, a new genus and species of teratorn (from the Greek *teratos-,* meaning wonder, and *ornis,* meaning bird), was discovered a few years ago by two well-known Argentinian paleontologists, Drs. Eduardo Tonni and Rosendo Pascual. What they found were a number of pieces of a skull, wing bones, and leg bones, all from a single bird. Preliminary work on this important discovery was carried out in the La Plata Museum in Argentina, the most important center for research in vertebrate paleontology in South America.

My introduction to this spectacular bird began when the National Geographic Society sponsored an expedition consisting of David Frailey of the University of Kansas, Lidia Lustig, an Argentinian geologist, and myself, to Peru during the summer of 1979. The purpose of the expedition was to explore the Amazon jungle of eastern Peru for fossil vertebrates. We were fortunate to find a large number of fossils and decided it was necessary to take some of them to Argentina for direct comparison with fossils in the collections there. It was this visit that resulted in the fossil bones of the giant bird coming to Los Angeles, the reason being so they could be compared directly with the fossil bones of the smaller teratorns that have been found in the asphalt deposits at Rancho La Brea.

The announcement of the discovery and identification of the world's largest flying bird was made jointly by the Natural History Museum of Los Angeles County and the National Geographic Society. The timing of the announcement coincided with the publication by the Natural History Museum of a book entitled "Papers in Avian Paleontology Honoring Hildegarde Howard." The fossil species was formally described in that publication.

Dr. Hildegarde Howard, one of the world's preeminent paleornithologists, has been studying fossil birds at the Natural History Museum since 1924. In fact, it was Dr. Howard who described both *Teratornis incredibilis* and *Osteodontornis orri,* previously the largest known flying birds. It seemed only appropriate that the new teratorn from Argentina be described in the book honoring Dr. Howard's lifelong dedication to the study of fossil birds.

It was also Dr. Howard who worked so hard, along with the late Dr. Chester Stock, to reveal the secrets of the fossil animals from Rancho La Brea and the mysteries of life in the Los Angeles Basin during the last Ice Age. Over the decades Dr. Howard has studied literally tens of thousands of bird bones from Rancho La Brea, including those of the best known teratorn, *Teratornis merriami.*

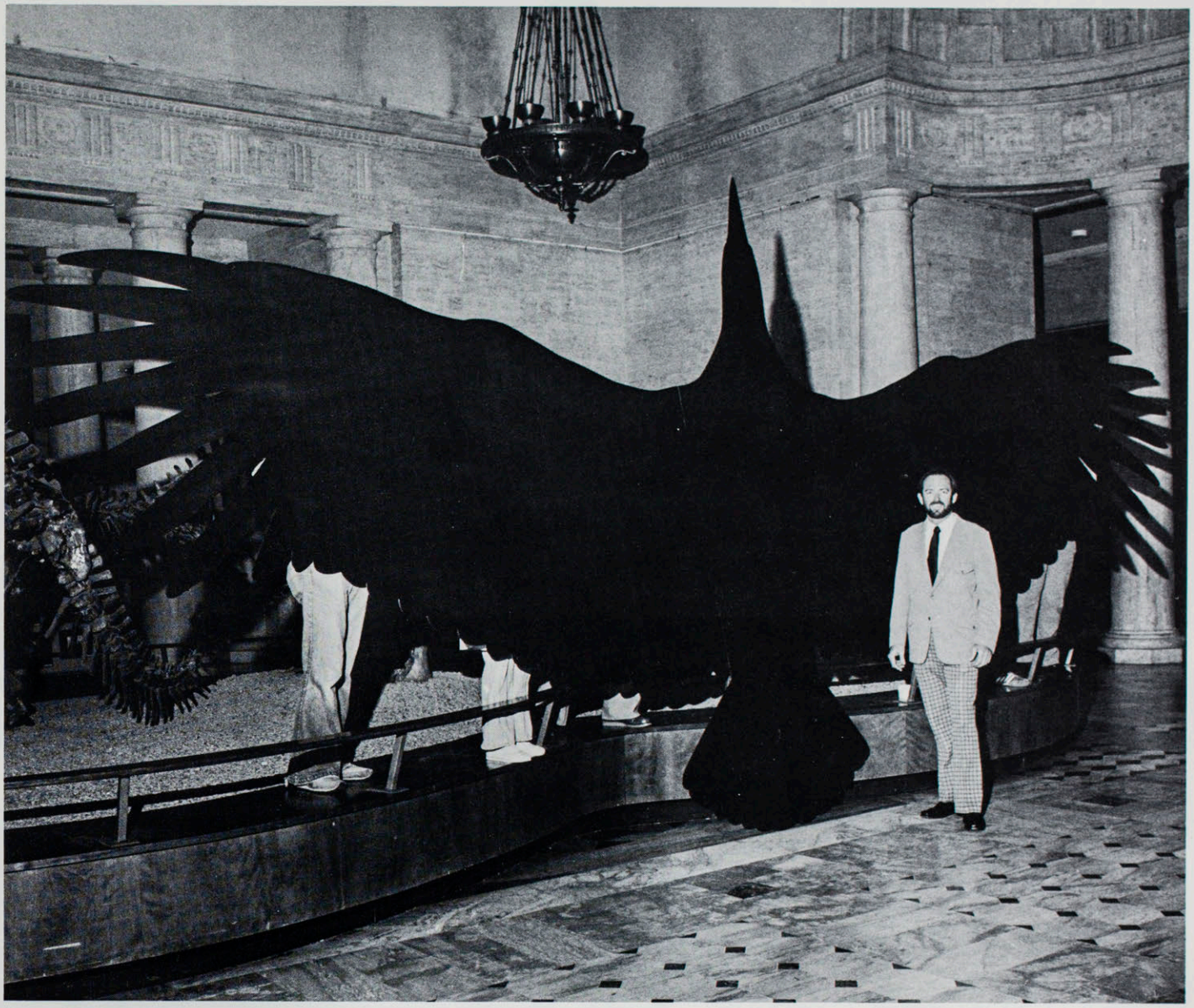
Teratornis merriami was the last surviving species of the extinct avian family Teratornithidae. It became extinct at the end of the last Ice Age, about 10,000 years ago. This species was also the first teratorn known to science, being described in 1909 from bones found at Rancho La Brea. Hundreds of fossil bones of this species are now known from Rancho La Brea, and it is these fossils that tell us most of what we know about the teratorns.

Argentavis magnificens is the oldest known teratorn. It has been dated at between five and eight million years old, or from the late part of the Miocene epoch, on the basis of the fossil mammals found in the same deposits as the fossil bird. Fossils of these same species of mammals have been found at other sites in Argentina for which radiometric dates are available.

Teratornis merriami weighed approximately thirty-six pounds and had a wingspan of about twelve feet. In comparison, *Argentavis magnificens* weighed between 160 and 170 pounds! And while *Teratornis merriami* stood only slightly over two and one-half feet tall, *Argentavis magnificens* could have looked a six-foot tall man in the eye!

In all, four species of teratorns are now known to science. Two of them, *Teratornis incredibilis* and *Cathartornis gracilis,* are known from only two or three bones, so little can be said of them other than that they were teratorns. We can estimate their size, however. *Teratornis incredibilis* was about forty percent larger than *Teratornis merriami,* while *Carthartornis gracilis,* known only from Rancho La Brea, was slightly smaller than *Teratornis merriami.*

Teratorns have always been considered relatives of the New World vultures because their bones look very much like condor bones. Teratorns were heavy-



ABOVE:
The silhouette of Argentavis magnificens*—the biggest bird that ever flew—looms over Natural History Museum curator Kenneth E. Campbell. A new Museum display includes the actual fragmented skeleton of the giant bird.*

Photos by Dick Maier

Actual life-sized model of the head of Argentavis magnificens *compared with California condor.*



Artist: Jill Littlewood

bodied birds with long, broad wings and an eagle-like head. In flight, at a distance, they probably looked like a condor. Up close, they would have looked like an eagle with a very elongated, sharply hooked bill. In proportion to the body of an eagle, a teratorn's head was almost twice as long.

Although all of the bones of *Argentavis magnificens* are broken and only pieces are available for study, it has been possible to determine several features of this large flying bird. For example, we are sure the bird flew because we have pieces of four different wing bones, and they are all of a size to be expected in a flying bird with a twenty-five foot wingspan. Large birds that have lost the ability to fly, such as ostriches, rheas, and emus, have only rudimentary wings and the wing bones are very reduced and some may even be missing.

Also, the ulna, one of the middle wing bones, bears the marks where the secondary feathers attached. The secondary feathers are one of most important types of flight feathers, and it is unlikely that a bird would have both feathers and wing bones suitable for flight if it did not fly.

When airborne, the big bird probably soared much as condors do today, seldom flapping its huge wings. This is suggested by the similarity between the structure of the bones of teratorns and condors. The physical limits of bone and muscle activity would have worked against continual flapping of the wings, although the big bird could assuredly have flapped its wings when necessary. To become airborne, it is not unreasonable to assume that all the big bird had to do was to spread its wings into the wind. Condors of today often become airborne in just such a fashion. Additionally, there is considerable evidence to suggest that strong winds were a permanent phenomenon on the Argentine landscape at the time *Argentavis magnificens* ruled the air.

The large size of the giant teratorns' wings would have limited them to living in savannas or open grassland. Consider that their primary flight feathers could have been as large as six or seven inches wide and close to five feet long! With wings that large the birds would not have had the maneuverability to fly in or around trees or brush. They also would have had difficulty, to say the least, in opening their wings in a forest.

It was long believed that teratorns were scavengers, feeding off the remains of dead animals as condors do. This was because their bones look so much like condor bones. This idea was given credence because so many teratorn bones have been found in the asphalt deposits at Rancho La Brea, where the birds were thought to have been trapped while feeding on the carcases of other animals that died at the site.

A new analysis of the head bones of *Teratornis merriami* shows that this interpretation is incorrect. The long, narrow, hooked beak and the type of jaw mechanism (*i.e.*, how the mouth opened) found in this species are similar to those in birds that grab small animals with their beaks and swallow them whole. The partial skull of *Argentavis magnificens* shows similar features.

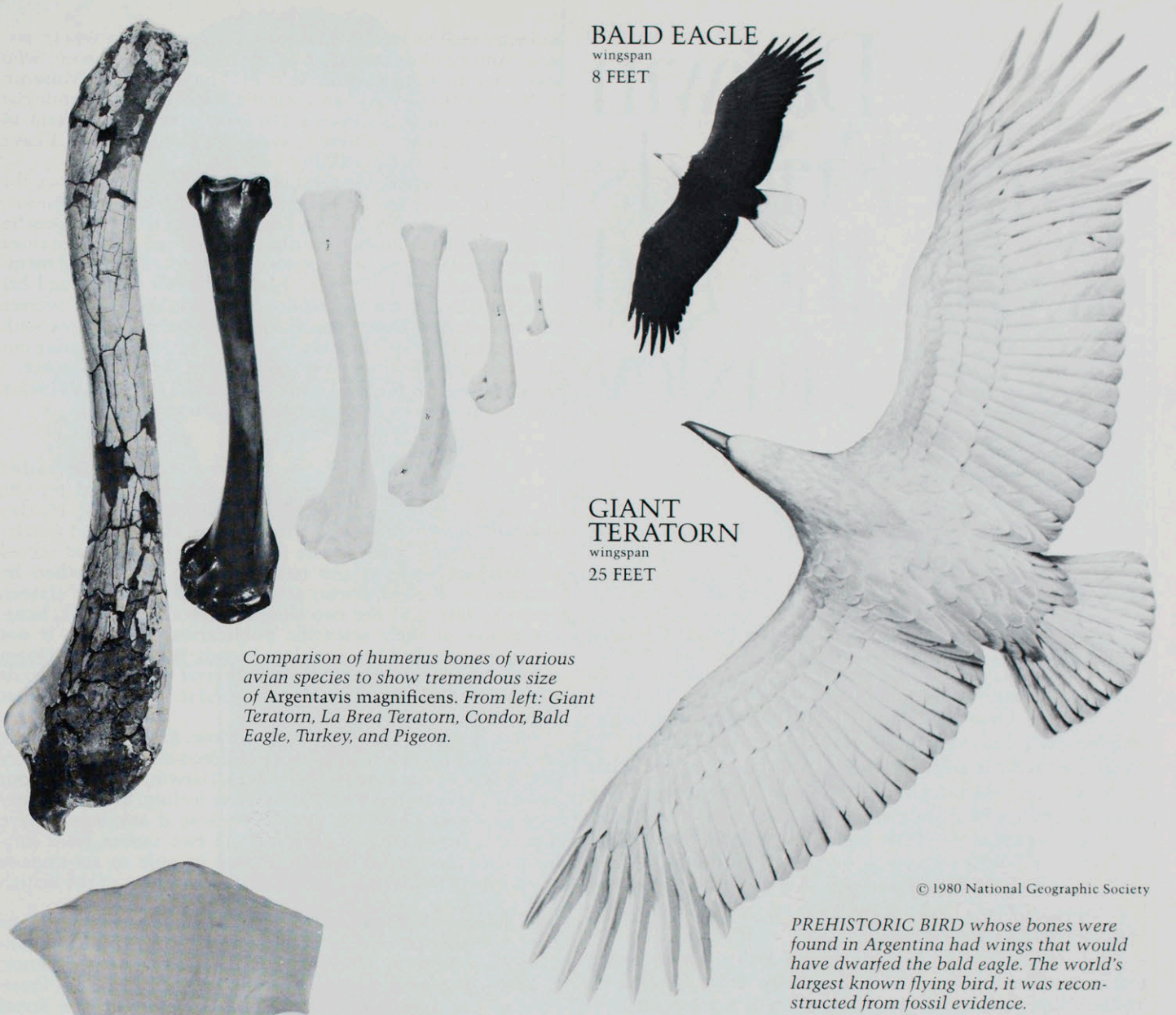
Teratorns probably used their sharp, hooked beaks to catch their prey because their feet were not of the type found in hawks, eagles, or owls; the latter being types of birds that use their feet to catch their prey. And since the jaw bones of teratorns were too weak to kill large prey by biting, and also too weak to tear large prey into pieces small enough to swallow, they must have fed on small animals, swallowing them whole.

And, since it has been concluded that teratorns were primarily active predators, we can be rather certain that they had feathered heads as do almost all birds that are active predators. Carrion feeders like condors have naked heads because they often stick their heads inside the carcasses of dead animals. If they had feathers on their heads, these would quickly become caked with dried blood and rotten meat, creating a potential cause of disease and infection, or a home for parasites.

We do not know exactly why teratorns became extinct, but we believe the ultimate cause was a change in climate. The teratorns from Rancho La Brea became extinct at the end of the last Ice Age, at a time when much of southern California became much drier than it had been previously. The shift to more arid conditions probably resulted in the loss of the teratorns' food supply. A similar sequence of events could have led to the extinction of *Argentavis magnificens*. Although this species lived well before the Ice Ages, there is evidence suggesting that Argentina was becoming much drier at the time the giant teratorn lived than it had been during earlier times.

There is still much to learn from the fossil bones of *Argentavis magnificens*. Casts of the original bones are being made for the collections of the Natural History Museum; the fossils themselves will soon be returned to the La Plata Museum in Argentina. An expedition to Argentina in search of more specimens of the giant teratorn is being planned for 1981.

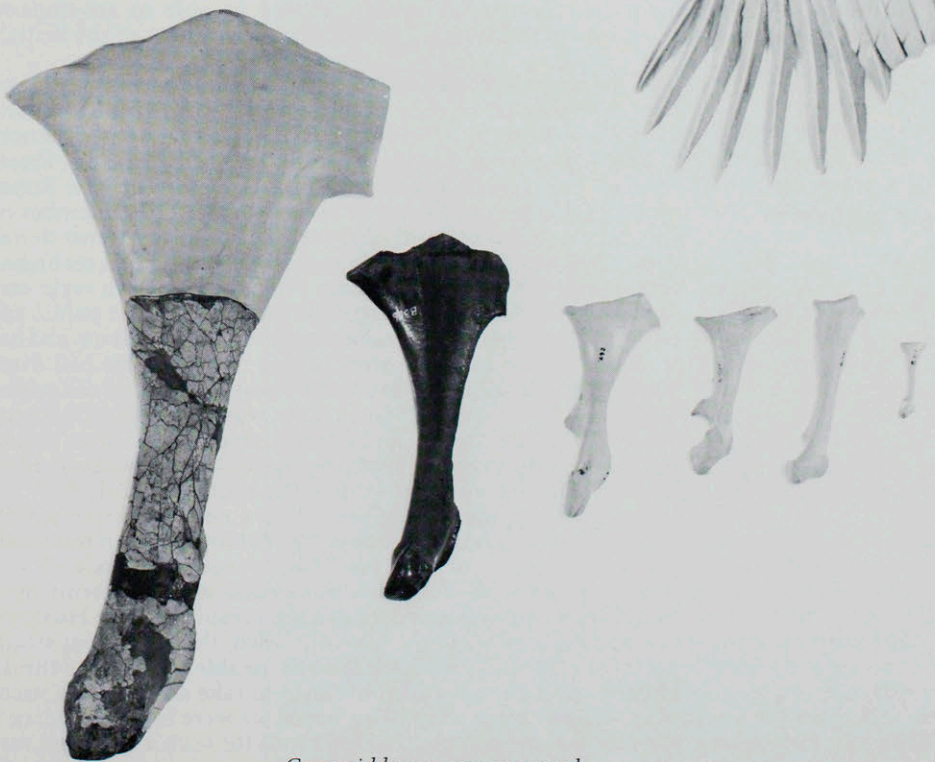
Meanwhile, some of the actual bones of the giant teratorn, a life-size silhouette of the bird in flight, and a life-size model of its head are on display in the main foyer of the Natural History Museum. We hope everyone will take this opportunity to view for themselves the grandest "Wonder Bird" of them all.



Comparison of humerus bones of various avian species to show tremendous size of Argentavis magnificens. *From left: Giant Teratorn, La Brea Teratorn, Condor, Bald Eagle, Turkey, and Pigeon.*

© 1980 National Geographic Society

PREHISTORIC BIRD whose bones were found in Argentina had wings that would have dwarfed the bald eagle. The world's largest known flying bird, it was reconstructed from fossil evidence.



Coracoid bones are compared.

Dr. Kenneth Campbell is an avian paleontologist who has concentrated his research interests on the birds of Rancho La Brea and South America. He is a curator of paleontology at the Natural History Museum of Los Angeles County. Dr. Campbell edited "Papers in Avian Paleontology Honoring Hildegarde Howard." This latest in the Museum's Contributions to Science series is available in the Museum Book Shop.

Darwin and Friends to the Aid of Huxley

by DONALD R. PATTEN

It was 1976 and I was visiting Down House, the home of Charles Darwin, now restored as a public museum and memorial. On display under a pane of glass on the dining room table was a letter, identified as being from Thomas Henry Huxley. The handwritten letter was folded so that only a few sentences were visible.

"My dear Darwin,

Your most kind affectionate letter, with its wholly unexpected,... unimaginable announcement, fairly overwhelmed me when it arrived last night, (along with a notification from my banker). I have spent many sleepless hours in wondering what I have done to make my friends care so tenderly and thoughtfully for my welfare...

"Some of these days I will ask you to let me know the names of the 17 who have so delicately shrouded themselves in anonymity...

"...I should be glad that all should know my feelings in the matter—feelings fully shared by my wife whose anxiety for me has, I know, been a heavy burden for many months past. She is not used to see me beaten..."

"...announcement,...banker,...anonymity,...anxiety,... beaten,..." These words both puzzled me and aroused my curiosity. What had Darwin done, and why? What did Huxley mean by "beaten?" What was this all about?

None of this seemed to make sense in terms of my knowledge of Huxley and Darwin. My impression of Huxley was that of an eminent Victorian zoologist, friend to Darwin, and major champion of Darwin's then controversial ideas on natural selection and the evolution of species. On 30 June 1860 it was Huxley who had supported Darwin's theory of evolution and confronted Samuel Wilberforce, the formidable Bishop of Oxford. Irreverently called 'Soapy Sam' because of his fervent eloquence, the Bishop had announced before the now-famous debate that he was out to "smash Darwin." Thanks to Huxley, the Bishop failed miserably.

My knowledge of Huxley was colored, as I suspect most student views are, by accounts which emphasize the assistance which Huxley rendered to Darwin. Professor Irvine, the biographer, described Darwin as "...the quiet, sedentary cause; Huxley the brilliant event. Darwin caused history [whereas] Huxley made it." In the winter of 1879, Darwin made his first and only visit to Huxley's laboratory where a class was in session. Among the students was Henry Fairfield Osborn, who was later to become President of The American Museum of Natural History and an eminent vertebrate paleontologist in his own right. Following Darwin's visit, Huxley said to Osborn, "You know, I have to take care of him; in fact, I have always been Darwin's bulldog."

The letter before me certainly didn't seem to support the image of Huxley as "Darwin's bulldog." Later that afternoon, thanks to Sir Hedley Atkins, I was allowed to read the entire letter. Since 1953 Down House has been owned and maintained by the Royal College of Surgeons of England. As a retired member and benefactor of the College, Professor Atkins and his wife, Judy, live on the second floor of Down House and oversee the operation of Down House and its estate. During tea with the Atkins, I learned not only the reason for Huxley's letter, but that my earlier views were incomplete. Then, and since, I have learned that the relationship between Darwin and Huxley was not so one-sided; it was more complex.

Just as Darwin had sailed around the world on the *Beagle* (1831–1836), Huxley also had circled the southern hemisphere aboard *HMS Rattlesnake.* For almost four years (1846–1850) Huxley had served as assistant surgeon and naturalist. He was 25 when he returned in 1850; Darwin, at 41, was his senior by sixteen years. By July 1851 the two were corresponding and exchanging copies of their scientific publications. By 1854, if not earlier, the two had become close friends. While visiting Down House in April 1856, Huxley and several other close friends stimulated Darwin to begin his expanded "abstract" of what became *On the Origin of Species*...

Socially, the two families became close. Emma Darwin, wife of Charles, took care of the Huxley children in 1867. Mrs. Huxley wrote of this occasion to Henrietta Darwin, "Towards your mother I always had a sort of nestling feeling. More than any woman I ever knew, she comforted. Few, if any, would have housed a friend's seven children and two nurses for a fortnight that her friend, myself, should be able to accompany her husband to Liverpool when he was President of the British Association,..."

In the early 1870's Huxley had become the most prominent man in biological science in England. He may have been handling one-half of the administrative business of English science. In addition to being President of The Geological Society, President of The British Association and Secretary of The Royal Society, he was Lord Rector at several universities, member of the London School Board, and member of at least two Royal Commissions. He had already turned out numerous technical papers and was starting a stream of textbooks. With style and apparent ease, Huxley managed all these duties, the public appearances, the seemingly endless series of appointments and his teaching duties, but they were taking their toll. He had from youth been sporadically troubled by gastrointestinal disorders, diagnosed as "dyspepsia." In 1872 he was seriously ill, accompanied by severe mental and physical depression. After an extended, but unsuccessful, trip to regain his health, he returned to England and attempted to resume the hectic schedule.

In December, the family moved to a new residence which Huxley had purchased, extensively enlarged, and remodeled. The early months of 1873 saw Huxley again seriously ill and incapacitated. This was all compounded with a lawsuit by a neighbor, because of supposed damages resulting from Huxley's remodeling. Although the lawsuit failed, the additional strain upon Huxley was too much. Nearly unable to work or think, Huxley was ordered by his physician to take an extensive vacation abroad. Unfortunately his expenses were high, including a loan for the remodeling, and the funds for such a trip were just not available.



Thomas Henry Huxley in 1874. (Steel engraving of photograph by Eliot and Fry; from Huxley, L. (ed.) 1900. Life and Letters of Thomas Henry Huxley.)

Charles Darwin in his wicker armchair, probably on the veranda at Down House. (Photo, circa *1874, by his son, Capt. L. Darwin; from Darwin, F. (ed.) 1887.* The Life and Letters of Charles Darwin.)

At this critical moment, Huxley's friends came to his aid. Funds donated by eighteen of his closest associates were to be given to Huxley to enable him to take the much needed rest. The idea was first conceived by Lady Lyell, wife of the geologist, Sir Charles Lyell. She whispered the idea to Emma Darwin, who, in turn, passed it on to Charles, who effected it. To Charles befell the task of notifying Huxley of the gift and convincing him to accept it. Emma wrote to a friend, "He sent off the awful letter to Mr. Huxley today, and I hope we may hear tomorrow. It will be very awful."

It was not an awful letter at all. As Leonard Huxley, son of Thomas, was later to write, "...it is difficult to say whether it does more honour to him who sent it or to him who received it."

"Down, Beckenham, Kent,
April 23, 1873

"My dear Huxley—I have been asked by some of your friends (eighteen in number) to inform you that they have placed through Robarts, Lubbock & Company, the sum of £2100 to your account at your bankers. We have done this to enable you to get such complete rest as you may require for the reestablishment of your health; and in doing this we are convinced that we act for the public interest, as well as in accordance with our most earnest desires. Let me assure you that we are all your warm personal friends, and that there is not a stranger or mere acquaintance amongst us. If you could have heard what was said, or could have read what was, as I believe, our inmost thoughts, you would know that we all feel towards you, as we should to an honoured and much loved brother. I am sure that you will return this feeling, and will therefore be glad to give us the opportunity of aiding you in some degree, as this will be a happiness to us to the last day of our lives. Let me add that our plan occurred to several of your friends at nearly the same time and quite independently of one another.

—My dear Huxley, your affectionate friend,
Charles Darwin"

Huxley's letter of reply was the one I had stumbled across at Down House. It is presented here in its entirety, I believe, for the first time.

"4. Marlborough Place,
Abbey Road. N.W.
April 24th 1873.

"My dear Darwin,

Your most kind affectionate letter, with its wholly unexpected, I may say, unimaginable announcement, fairly overwhelmed me when it arrived last night, (along with a notification from my banker). I have spent many sleepless hours in wondering what I have done to make my friends care so tenderly and thoughtfully for my welfare. So I am rather shaky this morning, and likely enough, I shall say what I have to say poorly and inadequately. But you will understand my stammering.

I accept the splendid gift you and my other friends offer, frankly, and in the spirit of the givers; and by my acceptance, I pledge myself to make the best I can of this cranky frame of mine, and get it in order for the best and highest kind of work of which I am capable.

With such a letter as yours before me, I should be the smallest of men, if I allowed even the shadow of an obligation to mingle with the great happiness so signal a demonstration of good-will has given me. And indeed, not a shadow of that feeling exists; for I do not confound with that—and you will not—a sort of impression, more or less morbid perhaps, that for the first time in my life I have been fairly beaten—I mean morally beaten. Through all sorts of troubles and difficulties, poverty, illness, bedevilments of all sorts—have I steered for these 30 years, and never lost heart, or failed to buffet the waves as stoutly as they buffetted me. And now that I am what people call a successful man, better off than I ever was in my life, and in spite of all my misadventures, with no claim upon me but what I could have cleared in a twelvemonth,—I have for months been without energy and without hope, and haunted by the constant presence of hypochondriacal apprehensions, which my reason told me were absurd but which I could not get rid of. No, I was breaking down: sliding into the meanest of difficulties, the would-be climber of heights mired in a mere bog. I can use strong language on occasion, as you know, and I have been giving myself the benefit of my own powers of criticism.

Well, I have poured out all this Jeremiad that you may understand what your letter and great gift will do for me—I may say—have done. For after all, it is the nucleus of fact which gives hypochondria its hold, and it has abolished the nucleus of fact. I shall go and take a long holiday in the summer now, without feeling that I am potentially guilty of fraud, and when my familiar blue devil dances about me (as I daresay he will for some time yet). I shall shy the cheque for £2100 at his head, as Luther did the inkstand.

Some of these days I will ask you to let me know the names of the 17 who have so delicately shrouded themselves in anonymity. Use this letter with them as you may think fit. I should be glad that all should know my feelings in the matter—feelings fully shared by my wife whose anxiety for me has, I know, been a heavy burden for many months past. She is not used to see me beaten.

Have I said a word of appreciation for your own letter? I shall keep it for my children, that their children may know what manner of man their father's friend was, and why he loved him.

Ever Yours,
T. H. Huxley"

That summer Huxley took his trip, setting out for France with his botanist friend, Sir Joseph Hooker. Huxley returned from the trip rested and in good health. He resumed his various careers and for nearly ten years was free of any serious illness.

Dr. Donald Patten is curator of mammalogy at The Natural History Museum of Los Angeles County. He was responsible for the Darwin exhibit currently on display in the Museum's Hall of Evolving Life. References used in the preparation of this article are available on request from the author.

A WONDERFUL BIRD IS THE PELICAN

by RALPH and ELIZABETH ANNE SCHREIBER

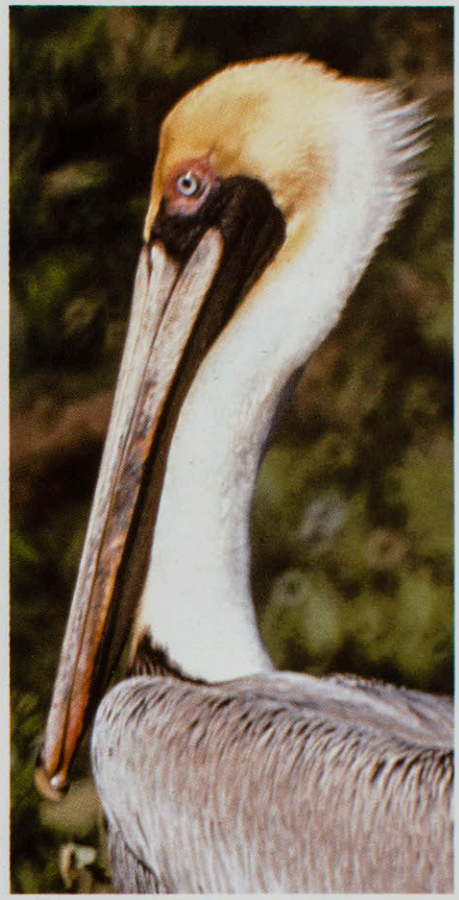
"A wonderful bird is
the pelican,
His bill can hold more
than his belican.
He can keep in his beak
Food enough for a week,
But I'm damned if I see
how the helican."

D. L. Merritt

THE California Brown Pelican *(Pelecanus occidentalis)* is only one of seven species of pelicans living in tropical and temperate regions throughout the world which we are involved in studying. We have spend the past twelve years studying pelicans, in Florida, Southwest Africa and South Africa. Two species of white pelicans nest in Africa, the Great White and the Pink-backed, both of which are much larger than our Brown Pelicans.

White pelican populations around the world appear to have declined rapidly in recent years, primarily because of human encroachment. Few colonies of these birds still exist in Africa and they are not successful every year. We have been asked by the International Council for Bird Preservation to compile all the available information on pelicans all over the world to assist in devising a wise conservation policy to save these huge and wonderful birds.

The pelicans are called totipalmate because they have four toes connected by the webbing in the feet instead of just three. All the other members of the Order Pelecaniformes, frigate birds, boobies, gannets, cormorants, anhingas and tropic-birds, have this same characteristic. Most of these species are tropical, but some, such as gannets and cormorants, are found in cold waters. One of the most famous members of this group is the flightless cormorant of the Galapagos.



Adult Brown Pelican.

Photographs by Ralph W. Schreiber

The present breeding distribution of the Brown Pelican in eastern North and South America is from North Carolina through the Gulf of Mexico and Caribbean Sea regions to eastern Venezuela. Stragglers are found north along the Atlantic Coast and south to the mouth of the Orinoco River in Venezuela. They only rarely venture farther south than the Guianas. On the Pacific Coast, nesting occurs from the Channel Islands of California through Baja California, Mexico, the Galapagos Islands, Ecuador, Peru and Central Chile. Nesting occurs in trees or bushes, or on the ground, but exclusively on islands where the colony is free of mammalian predators.

PELICANS have existed in the Old World since at least the Miocene Age (ten to twenty-five million years ago) and two fossils from the Pliocene Age (one to ten million years ago) of North Carolina and California exist. Early explorers throughout the regions where pelicans are found noted their presence in journals, and stories of pelicans are common in historical mythology and legends. At the turn of the century, President Theodore Roosevelt established the first United States National Wildlife Refuge on Pelican Island in eastern Florida to preserve the nesting colony there.

Only the Brown Pelican dives from three to thirty feet above the water to capture its prey and feeds only in salt water. All other species nest inland on brackish or fresh water. All nest in colonies, all eat fish, and all but the Pink-backed and Brown feed in communal groups, herding the fish into the shallows for capture.

Pelicans exhibit what is called deferred maturity, which means that they don't

breed until they are a few years old. Females probably breed at three years of age and males begin at from three to five years of age. There are no plumage differences between male and female pelicans but males usually are larger than females in bill length and body weight. Adult Brown Pelicans undergo seasonal changes in plumage and soft part colors, primarily related to the nesting season and the need to molt worn feathers and grow new ones. These color changes are referred to as "secondary sexual characteristics" and occur just prior to and during pair bonding. The iris of the eye of the Brown Pelicans actually changes color during this cycle of changes.

WHITE Pelicans undergo different changes to get ready for the breeding season. The American White Pelicans develop a two to three inch high horny knob on the upper portion of the bill, and the Great White Pelicans of Africa develop an enlarged fat and fluid filled knob on the forehead.

Pelicans lay up to three eggs and all are white. Eggs are laid asynchronously with twenty-four to sixty-four hours between the laying of each one. The parents begin incubating the eggs when the first one is laid and take turns performing the duties. The eggs hatch after thirty days and it takes three to four days for all the young in each nest to hatch.

How many young are raised by each set of parents varies quite a bit from year to year, probably dependent on the amount of fish that a pair can catch for their young. When food is readily available a pair can raise two or three young. However, when they have difficulty catching fish there will not be enough for all the young in the nest. Since the first chick to hatch is several days older than its siblings and can beg more vigorously for food it gets the most and in times of low food availability it will survive because it is well fed. Its siblings will, however, die of starvation. In this way at least one healthy chick gets raised.

A nestling pelican requires about 150 pounds of fish, minimum, to fledge successfully. They weigh considerably more than adults when they leave their nest. Once they have fledged they are no longer fed by their parents, but live off the fat stored up while their parents were feeding them as they learn to feed for themselves. It is difficult for the young birds to learn to catch fish. During this time they will lose a lot of weight. Thus it is of survival value to the species to fledge one young at a high weight. If too little food is distributed equally to all nestlings none of them will survive because they do not have enough stored fat to get them through the learning to feed period.

A wild pelican needs to eat somewhat over twenty-five per cent of its body



TOP: *Nest of Brown Pelican in black mangrove in Florida.*

MIDDLE: *Nestling Brown Pelican less than twelve hours old, with eggs yet to hatch.*

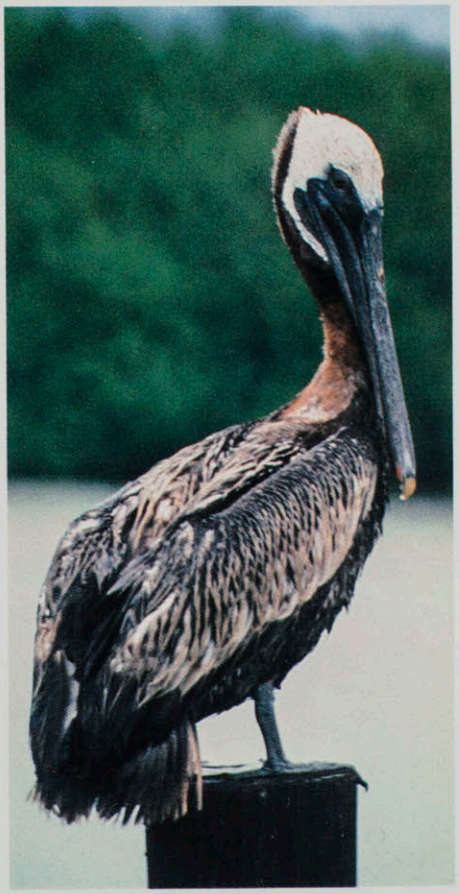
BOTTOM: *Three sibling Brown Pelicans, oldest about ten–twelve days, youngest smaller and probably starving due to inability of adults to catch sufficient food to feed all three.*











TOP: *Nestlings have to force the adult to regurgitate in order to be fed.*

ABOVE: *Brown Pelican less than six-months-old.*

RIGHT: *Adult Brown Pelican in Fall, at the end of the nesting season, with all feathers very worn. Molting into new plumage will begin soon.*

weight each day, and an adult weighs between 3000 and 4500 grams. Many young pelicans die in their first year of life because they do not learn to feed themselves well enough to catch enough fish to survive. Once these feeding skills are perfected a Brown Pelican may live to be as old as thirty-five.

After the nesting season is over all the birds leave the colony area, although they do not necessarily migrate south. Here in California the major influx of pelicans in the fall and winter is by birds coming north from the large colonies in Mexico. There may be more than 100,000 pelicans along our coast during the fall and winter, while fewer than 2000 pairs actually breed on the California Channel Islands.

BROWN Pelicans are adapted to a variable and unpredictable source of fish which is regulated by oceanographic conditions. Because of this nestlings have evolved to be able to survive up to a week or so without being fed. In years of good food availability the three egg clutch allows for the production of several young to make up for the poorer years. When food is low they do have low nesting success, but this is common and normal for pelicans. Only when poor years continue uninterrupted for a period of several years is there need for concern regarding the population's stability. It is, however, difficult to differentiate between when the birds have just had a poor fish year and when there is a real problem. Only studies of individually-marked birds over a period of at least two generations coupled with studies of captive birds will accurately allow us to advance our understanding of problems such as this.

A few years ago (in the 1960's) we almost lost our comical pelican character to pesticide contamination. A company in Los Angeles that manufactures DDT was dumping its waste into the Los Angeles sewer system which ended up in the ocean. The fish picked up the DDT from the food they were eating and by the time the pelicans ate the fish the DDT was greatly concentrated. This caused the birds to lay thin-shelled eggs which crushed as they were laid or when they were incubated. Pelican eggs from throughout the range of the species in the United States clearly illustrated the direct relationship between the amount of DDT present in the eggs and the amount of shell thinning; the higher the chemical concentration the greater the amount of thinning. The highest amount of contamination and shell thinning and the lowest reproductive success was experienced here in California because of the huge amount of contamination from the DDT manufacturing plant. We still saw pelicans along the coasts of California during this time because the adult birds were not killed by the DDT, only their eggs.



TOP: *The author, Ralph Schreiber, with adult White Pelican,* Pelecanus onocrotalus, *captured by Museum expedition sponsored by C. E. Lathrop to South West Africa in 1977.*



BOTTOM: *Brown Pelicans and Laughing Gulls,* Larus atricilla, *in a feeding flock in Florida.*

SOUTH Carolina and Florida experienced much less problem. With the ban on the use of DDT in the United States and the cut-off of the local contamination in the Santa Barbara Channel in the early 1970's the residue levels began to decline and the birds responded rapidly. Egg shell thickness began to increase and successful reproduction again occurred by the mid-1970's. The population now appears to have recovered from the threat of DDT. This was a very rewarding example of how with proper knowledge and care we can protect our wildlife.

Pelicans totally disappeared from the Pelican State, Louisiana, in the late 1950's and early 1960's, and today only a small remnant of the once 50,000 pairs exists in Texas. The cause of the disappearance was not DDT but another chemical pesticide, Endrin, which was used in large amounts on the cotton and cane fields of the Mississippi Delta Region.

In an attempt to bring pelicans back to the Pelican State nestling pelicans have been taken from colonies in Florida since 1969 and released in Louisiana where they have been nesting since 1971. While 40% of the population was killed by an Endrin upsurge in the water in 1975, the birds appear to be reproducing successfully now. This experiment has given us good insight into the reproductive biology of the species and their susceptibility to pollution. The species is still in grave danger of extinction in Texas and Louisiana and needs to be closely watched for further problems, especially since various pesticides are still being used in the Mississippi Delta area and up the river.

The populations of South Carolina, Florida, and California are probably now back to normal since the DDT ban. It is up to man to ensure that we do not overharvest our fish resources and pollute the marine ecosystem so that we can live in harmony with wild birds and mammals. We must remember that these birds provide us with a sensitive indicator of environmental quality. It behooves us to keep our environment healthy for the birds since the same factors that affect them also affect humans.

By monitoring sensitive bird populations such as pelicans, we can tell when some form of harmful pollution enters the ecosystem, and then we can act to protect the environment and ourselves, as well as the birds.

Ralph Schreiber is curator of ornithology at the Natural History Museum of Los Angeles County, where his wife Betty Anne is a Research Associate. They have been studying the biology of pelicans and their relatives for twelve years and have written many popular books and scientific articles about them.

(Continued from Page 2)

It would be three years, November 6, 1913, before the city, county and state joined their efforts in providing the great opening ceremonies for the two buildings.

Gretchen Sibley, Museum Historian

The Second Unveiling

August 12, 1980, 9:30 a.m.: With a gold painted crowbar, Gretchen Sibley, Museum Historian, removed the first board covering the bronze figures in the old Rotunda. The brief ceremony was witnessed by the Museum staff, the first to see the statuary hidden for forty years by exhibit cases. The director, Dr. William B. Lee, and Miss Sibley discussed some of the early history of the building with the staff while the carpenters removed the entire shell to fully reveal the figures.

The three allegorical figures representing history, science and art were sculpted by Julia Brachen Wendt. In 1910 she was commissioned by the County to produce the work for the Rotunda. This was the first sculpture designed for a public building in Los Angeles and funded by public money. The sculpture was not finished in time for the Museum opening and was unveiled on May 30, 1914 in a special ceremony. By the forties the figures were considered *passé* and were hidden from view when the "Wolf to Dog" exhibit was installed.

This recent unveiling was the first step in restoring the Rotunda to its original condition. Walls, columns and ceiling have now been cleaned, lights replaced, the floor carpeted and other architectural details renewed. The original building became a National Landmark on March 7, 1975 and plans were then begun for the restoration. (See "An Heroic Sculpture Hidden Beneath the Minerals," Gretchen Sibley, TERRA, Vol. 14, Number 1, Summer, 1975)

New Mineral Named For Museum Donor

Dr. Anthony R. Kampf, Associate Curator of Mineralogy/Geology, has recently described a new mineral from the tin mine in Llallagna, Bolivia. The new mineral is an iron tin hydroxide which occurs as tiny brownish-orange crystals in star-like arrays. It was discovered on specimens collected by the late Mark Chance Bandy in the 1940's while he was mining manager, engineer and geologist. His widow, Jean, gave their collection to the Museum in 1977 and many of their finer specimens are on exhibit in the Hall of Gems and Minerals. Dr. Kampf chose to name the mineral "Jeanbandyite" in honor of Jean Bandy who continues to be a great friend and supporter of the Museum and the Mineralogy/Geology Section.

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